BUGS THAT IMPROVE PLANT GROWTH—FRUIT TREES FOR SHADE

only good bug is a dead

But there are "bugs" that do a

It is not yet known how many kinds gardens. infinitesimal soft workershich have scientific names that would hundred thousand of them and put them away a three horned rhinoceros them to work in the garden! take up all of their food in liquid of clover or a bean or a pea where est" its food in any other form.

soil that is soaking wet, nor in one for some other crop the nitrogen which of manure to a very large extent, and dry soil, or road dust so the seeds much as the proteins of the pea or manure is getting harder to obtain will not stick together. Plant as soon navy bean. The product averages six entent gets down much below 25 or that crop per cent. A soil that is well stuffed For thi humus, which can be kept satuated to a degree of from 40 to 60 per cent., is the ideal. That is one of the main reasons why crops grown under irrigation yield such tremendous re-

Then there is another class of these helpful bacteria which perform a still more wonderful service. During the early part of the war the papers liad considerable to say about the plant which the Government was to erect at cost of several millions to manufacture nitrogen from the air. That seemed one of the most uncanny schievements of modern science. Nov nitrogen is one of the most important forms of plant food. In most gardens it is the "limiting factor"—that is, plants will make only as much growth as there is nitrogen to support. It is Stirring Up the Seeds So Every Seed Will Be Inoculated. one of the peculiarities of plant nutrition that they will not "fill up" on beans, even where vegetables are to enrich any plot of soil that is to be other forms of plant food when any grown only for the home table, beone particular element is short. And cause these crops can be used to make can be sown in between the rows of nitrogen, even before the war, was the garden rich, thus taking the place

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almost impossible to get in the country. But who wants coal or wood fuel in the hot summer? Make your own gas

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bath or laundry, good lighting -at a cost of about \$3 a month. That's what the TIRRILL GAS MACHINE will do. It solves the servant

It operates automatically: lasts a lifetime: is economical; requires nor repairs; no smell, smoke or danger. Fully guaranteed. Capecity from 15 to 1,000 lights. Prices from \$300 up, tacording to style and requirements for single building or group of buildings.

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and easy terms and make life worth living this summer.

Reliable Agents Wanted-Write for Liberal Terms.

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MANUFACTURERS OF SULCO-V. B.

A COMBINED CONTACT NEECTICIDE AND FUNGICIDE

135 FRONT STREET

Editor of the Garden Dept.,

NEW YORK June 13, 1919.

New York Sun,

Yours very truly,

We have received more inquiries

New York City.

Accept our thanks for your co-operation.

BY Charles tremed

SULCO-V.B. DEPT.

GEN. MGR.

PRODUCERS AND REFINERS OF WHALE AND FISH OILS

O matter where located, you can have gas with all

its comforts for cooking and lighting—as if you lived in the city. Coal, even if you wanted it, is

way of thinking that the plant food to buy. It cost more than phosphoric acid, potash or magnesia,

which are the other things needed. Nitrogen can be manufactured right But there are "bugs" that do a in the garden, or at least these neigh-rid of good in the garden. In fact borly bacteria can be made to manuthout them there would be little facture it. Certain of the soil bacteria with of any kind. have the capacity of gathering nitro-Now the bugs we are speaking of, gen from the alr and storing it in soil course, are not the ordinary kind in forms which plants can make use und on potato vines and cabbage of. Even after the knowledge that

They are "bacteria," the these bacteria could do this work was pic hosts which live and have, realized it was a long time before any eir being in the soil itself, multi- bailed was worked out by which this ying, where conditions are favorable, fact could be turned to practical adthe billion. They form an army of vantage for the gardener, especially cupation aliled to the gardener's in-coupation aliled to the gardener's in-coupation aliled to the gardener's in-coupation aliled to the gardener's in-tor the home gardener who had only costs which is little appreciated by est tillers of the soil, either amateur Now, however, these nitrogen makers can be utilized even in the smallest o

All that is pecessary is to get a few

ere are in existence. They are of The bacteria which gather nitrogen to the gardener because they live only on a certain class of plants eak down" the plant food elements called legumes. These include beans, hich exist in the soil, transforming peas, sweet peas, the clovers, vetch, m from what may be spoken of as alfalfa. &c. They form on the "raw" state into forms which the roots of the growing plants small lumps or nodules. Pull up a plant erm. Even the rugged oak tree lives they are growing especially strong and on "soup"! It cannot possibly in most cases will be found an abun-its food in any other form. dance of these nodules on the roots. friendly bacteria, however, The fact of greatest importance, howill work only when things are made ever, is this: not only are the plants semfortable for them. They are rather on which the nodules are formed benesarticular about their environment, fited, but when the ground in which They will not continue to exist in a these crops are grown is used again

For this reason gardeners should be interested in clover, cow peas and soy



Inoculated Sweet Peas

every year. Sow soy beans or cow peas now, or crimson clover, or vetch not expose the seeds after being inoc-

used next year. The rye and clover

crop of that kind-in fact, anywhere

spring. If there is a new piece of

ground to get ready sow soy beans or

cow peas now and dig them under be-

But before planting any of these

things, or any garden peas or beans

for that matter, unless the gardener

has been getting perfectly satisfactory

there are two things to do. The first

The bacteria will not thrive in acid

soil. Ground in which clover naturally

in which wild sorrel thrives abund-

the soil can be tested with a bit of

the soil made wet enough to be muddy

and if this changes color that will

indicate that the soil is acid. To cor-

rect this, apply air slaked lime or raw

house or fertilizer dealer. Apply from

square feet and thoroughly rake into

each seed with some of the desired

bacteria before it is put in the ground:

soil as one would fertilizer and rake

should be diluted according to direc-

tions with water and then sprinkled

over the seeds as shown in the ac-

companying photographs. Mix the

evenly coated with wet mixture, and

then dry them off by rolling in sifted

ELIZABETHPORT, N.

PORT MONMOUTH, N. J.

fore killing frost.

the surface.

as possible in the ordinary way. Do ounces of protein to each gallon.

If desired an interesting experiment can be performed by leaving part of the seeds not inoculated and planting under the same conditions. Then note the difference in results. Where the inoculant is to be used on a large scale commercially it is usually advisable to try out a small plot first be sure the conditions are right and the bacteria are right to get results that will pay. The use of inoculating mediums has become quite general among progressive market gardeners and farmers, but the home gardener has not as yet made nearly as much use of them as he might profitably do F. F. ROCK WELL.

NUT TREES IN MICHIGAN.

A bill was passed in the Michigan Legislature recently for the planting sweet corn, tomatoes or any other of nut trees on an extensive scale throughout the State. The State Agyou can get the ground cultivated ricultural College and Public Domain Commission are to supply the seeds or these will live through the winter and trees for planting along the highways, can be spaded or ploughed under in the under engineering directions of the is in ice cream is ready for assimila-

State Highway Commissioner. Michigan has just issued \$50,000,000 in bonds for the improvement of the highways, and the Federal Government is to contribute a like amount. while the counties, cities and townships will contribute as much more, a total of \$200,000,000 for good roads, to results from them (in which case the be lined up with nut or other food soil is already supplied with bacteria) producing trees.

The bill was introduced by Senator s to make sure that the soil is "sweet," Harvey A. Penney of Saginaw, and is one of the few agricultural bills that have been presented that are same and grows well is usually sweet. Ground sound and reasonable from start to finish. Senator Penney and the citiantly is pretty sure to be acid. Or zens of Michigan are to be congratulated. The work will be of incalculitmus paper. This can be obtained lable value and will increase the value in any drug' store for a few cents. of all real estate, city and country, in Place a piece of paper in a little of Michigan.

CITY AND COUNTRY.

can be obtained from most any seed and barbarous people live in the city. but when they become civilized God ten to twenty pounds to one hundred promotes them to the country."

Is it not a strange thing how all through history the man made city has assumed itself superior to the ulate" the seed or the seed bed before planting. This means covering to this assumption in spite of the evident truth that the great reform movements which have shaken or applying the bacteria directly to the all started in the country. The city Bacteria prepared to apply to so that they never have worked out the seeds comes in a jellylike "meallye and which just before using machine made life must of necessity be more cultured or refined than the more natural and simpler life of the farmer.-Hural New Yorker.

GARDEN ON BOSTON COMMONS.

A demonstration garden has been planted on the historic Boston Commons, and during the active gardening season a small information booth is being maintained. According to the report of a representative of the United States Department of Agriculture, who recently visited a number of cities in the New England States, the food production campaign in those States is as active this year as it was during war times. In many cities the schools have attempted to include school garden work as a part small trees was picking off the worms of the campaign, but in Boston they and stepping on them. Many of them are confining the work primarily to giving instruction in gardening. that city weekly conferences are held do in case they come again?-A. P. B., for teachers and special instruction in garden work is given.

ICE CREAM AS A FOOD.

The first food furnished the human animal is mother's milk, and now, owing to extensive research work on the part of scientists, we are given to know the reason why.

The scientists have discovered the fact that any young growing animal that salt failed to sweeten one's tea.

To have desired results the right out some of the vitamines found so abundantly in natural fat which comes in milk.

Ice cream is made of cream from milk, sugar, either cane, corn sugar or glucose, or all three as the case may be, a flavor and some other ingredients. Those mentioned are the principle ones.

Cream is composed of butter fat, having present the necessary vitamines essential to growth, some mineral substances, protein and water. There is some unknown principle or quality in milk fat that makes the

child grow and thrive. In ice cream the normal milk fat content, which averages possibly 8 to 15 per cent .. makes a rich, wholesome, concentrated contact. Among the most effective of food, containing not only butter fat these are aphine, black-leaf-forty, fish but also protein, carbohydrates and The proteins of milk are worth three times as much for growth, sides these are some combinations pound for pound, as the proteins of which are useful for both diseases and cereal grains and nearly six times as chewing insects-pyrox and Bordeaux-

ottles are still there except a few that have been carried away and others broken by small boys. Is it quite fair to charge this wholesale loss up to the consumers? This

cartra, No. 123,459, a Hoistein cow, has produced 156,776 pounds of milk and 6,141 pounds of butter.

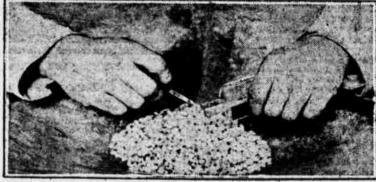
The condition known as limberneck We are informed that the necessary is in realty not a disease, but is a and rye in late July or early August, ulated to bright sunshine or drying calcium or lime is really supplied in symptom of several diseases which are

troyed, then use the right material.

\$12 to \$15 per acre.

any crop profitably.

is exactly what is done.



Pouring the Diluted Jellylike Inoculent on the Seeds.

milk, whereas sodium and chlorine are | characterized by a paralysis of the muscles of the neck which makes it supplied by common salt. impossible for the bird to raise its

The normal blood sugar is dextrose All sugars, other than corn sugar, head from the ground. This condihave to be converted into dextrose or glucose before they can be assimilated. Without glucose in the blood, life upon the nervous system and cause would cease. The corn sugar which

Nodules on the Roots of Peas.

tion without using up energy in the

Ice cream thus made is an un-isually wholesome porduct and a very

refreshing confection for adults and

all should recognize this value and

consume more ice cream. Ice cream

and products of it were put in the essentials by the Food Administration.

CATERPILLARS STRIP TREES.

Last summer my willows and some

of leaves by big, ugly caterpillars. I

sprayed the trees, but to no purpose.

were blue with the spray, but didn't

seem to mind it at all. What shall I

The fact that the worms were "blue

with the spray" indicates that you used

secticide except in a very limited way

and therefore not useful for insect killing. It is used for controlling dis-

Bordeaux mixture. This is not an in-

cases of certain kinds. Many people

make just such mistakes as this and

then declare that "spraying is no

good." It would be just as true to say

To have desired results the right

spray mixtures must be used. A few

minutes' observation of the malady or

the insect that is doing damage will

give a hint as to what to choose. If

the trouble is a disease, Bordeaux

mixture, ammoniated copper solution

tine, scalecide and tobacco dust.

The only thing that saved some of the

-H. A. Holskook, Connecticut.

conversion thereof.

Long Island.

three or four teaspoonfuls of castor oil for a grown fowl. Often the birds will be cured within twenty-four hours. In case they are not better within three or four days it is not advisable to keep them. Beware of feeding too much scratch feed! The chicks get in the habit of eating too much of this and not enough mash, so that when winter comes and they need a larger proportion of mash to help in their egg pro-

tion is due to the absorption of

poisons from the intestines, which act

paralysis. It is generally associated

with indigestion or the eating of mouldy grain or putrid meat or with

The best treatment is to give a full

fifty or sixty grains of Epsom salt or

se of purgative medicine—that is,

duction they are not very willing to cat it. Not more scratch feed than the chicks will clean up in about ten minutes should be fed early in the morning, and in the evening they should be served out fust enough to clean up in wenty minutes. Provide large outdoor feed hoppers in the ranges where they will be handy for the birds. They will need plenty of these to prevent

PINCH." DIP OR BRUSH TO FIGHT POULTRY "COOTIES." A very satisfactory way of eliminat-

ing lice from poultry is to treat each fowl separately with sodium fluorid. Commercial sodium fluorid may be purchased at most drug stores at from 30 to 60 cents a pound and may be applied either by the so-called "pinch" method or by means of duster made by punching small nail holes in the bottom of a can having a tight-fitting cover or by dipping. If the pinch method is used, the bird is held on a table while a pinch of sodium fluorid is applied next to the skin under the feathers, as follows: One pinch under the head one on the neck, two on the back, one on the breast, one below the vent, one on the tall, one on each thigh, and one on underside of each wing. The feathers should be ruffled to allow the powder to get next to the skin. If the bird holes in the bottom of a can having other trees were completely stripped to get next to the skin. If the bird is held in a large shallow pan the small quantity of powder which falls off will be saved. If the powder is dusted on by means of a shaker the

spraying determine what is to be dedust or flour to one part of the chemical. This method requires the services of a second person to hold and A poor piece of land in need of ma-ure and for which none of this maturn the fowl.

When large numbers of birds are terial is obtainable can be enriched y sowing soy beans. Inoculate the beans and plant them to be treated the sodium fluorid may be used in the form of a dip, using as soon as possible, supplying a little acid phosphate to stimulate growth. one ounce of commercial sodium fluorid to each gallon of water. The bird should be held by the wings and plunged into a tub full of the solution, The total expense should not exceed In the autumn plough or disc the leaving the head out, while the feathers are ruffled with the hand to allow crop under and sow rye for a winter cover crop. Turn the rye under next the solution to penetrate to the skin pring, give a dressing of lime and the The head is then ducked once or twice and will be in shape to grow, most and the bird allowed to stand a minute to drain and then released. Dipping is as effective as the other methods but should not be used on very weak The United States Agricultural Deor young birds or in cold or damp partment and various State Agri-

cultural Departments have warned weather. One pound of sodium fluorid will treat 100 birds. milk users to be careful not to break or throw away the bottles, as the cost of lost bottles was added to the cost of the milk by the distributor.

In a large city near New York in a vacant lot under a tree, about three weeks ago, were noticed thirteen boxes of empty milk bottles. The boxes of

HOT WEATHER POULTRY HINTS.

Shade and protection from the glarand heat of the sun mean better and more cheaply matured pullets, more summer eggs from the laying fowl.

Plenty of shade should be provided, especially for growing chicks, in order that they may thrive and prosper during warm weather. Shelter furnished For six consecutive years Tilly Alby plants or trees is much cooler than that afforded by buildings or other artificial means. Chicks allowed to range in orchards will not only find ampl shade and green food, but will benefit the trees as well as themselves by destroying insects and worms. Corn or sunflowers will help to provide the necessary shade, or artificial protection may be obtained by supporting frames covered with burlap or branches of trees a few feet above the

> Although chicks may be hatched from strong, vigorous stock and carefully brooded, their growth will be retarded unless they receive the proper attention during warm weather. Growing chicks should be provided

with plenty of nutritious food, includink green stuff, dry mash and grain As a supplement to the green food which the chicks will rustle on the free range, a grain mixture consisting of six parts cracked corn, three parts wheat, two parts hulled oats, and one part Kafir corn, should be fed where possible. The ration may be varied according to the grains available, providing the feeding value is maintained As the chicks get older clipped oats may be used instead of hulled oats. In addition to the above feed, a dry mast should be fed in a hopper to which the A good mixture for this purpose consists of two pounds of corn meal, one pound of middlings, four pounds of rolled cats, two pounds of wheat bran and two and a half pounds of beet scrap. Charcoal grit and ground oyster shell should be available constantly so that the chicks can belo themselves.

If a continuous supply of skim milk is available it may be fed separately in a pan, and the beef scrap in the above ration should be reduced one-half. Whenever it is possible growing chicks should be allowed free range so



A concentrated liquid which, when diluted with water as per directions on can, will prove a wenderful weapon of defense to guard house or garden plants, vegetables, fruits or flowers, from the ravagen of Aphis (Green, Black or White Fly) as well as thrips, soft scale, currant worm and cab-

thrips soft scale, currant worm and cap-bage slugs.

Fungine Controls Bust and Mildew.
Accepted by successful gardeners overy-where as the standard remedy for the con-icol of mildew, rust and various ether fungi-thal attack vegetables, fruits or flowers.
Does not stain foliage.

Vermine Destroys Worms, Maggots.
Good for potted plants in which it de-stroys sel and angle worms as well as for serllizing the garden soil which it rids of maggots, grubs, worms and root lice.

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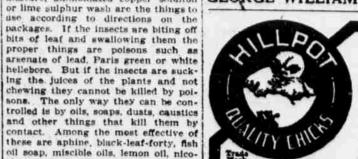
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W. F. HILLPOT, Box S, FRENCHTOWN, N. J.

amount of sodium fluorid used may be that they may obtain as much nature reduced by using four parts of road green food, such as grass, alfalfa as clover, as they need. Green feed is as excellent tonic for chicks and when they cannot obtain it on range such substitutes as sprouted cats, cut clove, aifaifa, mangel beets or cabbage sheek

be fed daily. The importance of clean, fresh water cannot be overestimated. In very her weather fresh water should be pre-vided twice daily and the water show be placed in the shade. The water pu should be cleaned every day before fresh water is added.

An abundance of free range should be provided if the chicks are to make rapid, vigorous growth. Confining then to a limited range not only increase the chances of disease and loss of vigor, but also tends to increase the cost of feeding. Chickens on free range obtain considerable food, such u worms and bugs, which help to redu-

the cost of feeding. Chicks should be examined occasion ally for lice or mites, and if these pets are present immediate steps shoulds

taken against them.

Poultry raisers frequently make the mistake of keeping old hens and kill-ing the younger hens and pullets because they are unable to distinguis them after the pullets have matured Marking the chicks when they are young with a toe punch will help to avoid this and will enable the poultry. man to determine readily the age and breeding and to keep any other records desired. The chicks should be marked before they are transferred to the brooder or brood coop.

Fowls stand cold better than damp-

Keep house and yard clean.

Provide roosts and dropping boards Provide a nest for each four or for

Feed table scraps and kitchen waste Also feed grain once a day,

Feed a dry mash.

Grow some green crop in the yard Spade up the yard frequently

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that have produced more actual sales of SULCO-V.B., and

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